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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,975	02/22/2006	Shaobing Wu	160-P-1654USWO	2269
23322	7590	03/30/2009	EXAMINER	
IPLM GROUP, P.A. POST OFFICE BOX 18455 MINNEAPOLIS, MN 55418			BAUMSTEIN, KYLE	
			ART UNIT	PAPER NUMBER
			1796	
			MAIL DATE	DELIVERY MODE
			03/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,975	Applicant(s) WU ET AL.	
	Examiner KYLE BAUMSTEIN	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

Claim 24 is objected to because of the following informalities: the claim reads “to form a coating coating...”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how “acetoacetoxyl groups” can function as crosslinkers, i.e. a separate additive component.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13, 17-19, and 24-27 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bontinck et al. (US Pat. 5541251).

Bontinck teaches aqueous polyurethane dispersions that can be used as a coating for a variety of substrates. The invented composition is an aqueous self-

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crosslinkable resin comprising as aqueous dispersion containing at least one polyurethane polymer and at least one vinyl polymer having chain-pendant acetoacetoxyalkyl ester functional groups (col. 3, line 3-9). Said composition contains the polyurethane polymer(s) and the vinyl polymer(s) in a weight ratio of 1:10 to 10:1 (col. 3, line 52-55). Being that these polymers are the only two components in the composition, such a composition comprising said polymers in the disclosed weight ratios would yield resins having the weight percentages of claims 9, 10, and 20 of the instant application. The polyurethane polymer to be used in the invented composition is prepared by the reaction of an organic isocyanate and an organic compound containing at least two isocyanate-reactive groups followed by addition of an active hydrogen-containing chain extender (col. 4, line 8-19). Said polyisocyanate is selected from aliphatic and aromatic isocyanates (col. 4, line 20-23). Suitable organic compounds containing at least two isocyanate-reactive groups are selected from a group including polyester, polyether, and polycarbonate polyols (col. 4, line 53-56). To this prepared isocyanate terminated prepolymer, a chain extender is added in an amount such that the NCO:active hydrogen ratio is in the range of 1.0:0.7 to about 1.0:1.1 (col. 8, line 21-24). Hydrazine is included in the list of suitable chain extenders (col. 7, line 63). Due to the fact that the reference discloses the use of excess chain extender, such a polymer would have hydrazine functionalities. The vinyl polymer component of the invention is prepared by free radical polymerization of monoethylenically unsaturated monomers containing an acetoacetoxyalkyl ester group and other unsaturated monomers selected from a group including alkyl acrylates and methacrylates, styrene, vinyl esters of

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aliphatic acids, and vinyl chloride. The amount of the monoethylenically unsaturated monomer containing an acetoacetoxyalkyl ester group represents preferably about 5-50% by weight of the vinyl polymer (col. 8, line 44-col. 9, line 20). Although the reference makes no mention of the acid number of the vinyl polymer, the weight percentage of the acidic monomer encompasses that as disclosed in the specification of the instant application. Therefore, the acid number would inherently fall in the range as claimed in the instant application. Similarly, although the prior art is silent with respect to the glass transition temperature of the vinyl polymer, the monomers suggested to make said component are the same as those disclosed in the specification of the instant application. Therefore, the glass transition temperature of said polymer would inherently be within the range claimed in the instant application. Also, the invented resin composition may optionally comprise auxiliary substances including pigments, wetting agents, and UV stabilizers (col. 10, line 24-36).

To prepare the aqueous resin composition, the aqueous polymer dispersion and the aqueous vinyl polymer dispersion are mixed homogeneously at ambient temperature (col. 9, line 60-64). The examiner maintains that prior to homogeneous mixing, the two dispersions would be present as separate phases in the mixture. The resin composition can be applied by any conventional method to any substrate including wood, plastics, ceramics, and metals (col. 10, line 4-5). After application, the deposited coatings are cured at ambient temperature for a period of three days.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-16 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bontinck et al. (US Pat. 5541251) in view of Irie et al. (US Pat. 6063861).

Bontinck teaches the aforementioned polyurethane-polyacrylate dispersion. The composition disclosed in the prior art has been shown to be substantially similar to that as claimed in the instant application. However, there is no mention of the addition of a crosslinker to the invented composition.

Irie teaches self crosslinkable polyurethane-polyacrylate hybrid dispersions comprising a polyurethane dispersion and a polyacrylate polymer as well as a difunctional amine (see abstract). The reference discloses that it has been described that polyurethane-polyacrylate hybrid dispersion which have carbonyl functional groups and polyfunctional amines form a stable, self-crosslinking, one component composition (col. 2, line 4-11). It has been held that the selection of a known material based on its suitability for its intended use supports a *prima facie* case of obviousness (*Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)). Therefore, it would have been obvious to have added a polyamine crosslinking component to the composition taught by Bontinck to form a storage-stable, self-crosslinking, one component composition.

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Although Irie does not disclose an amount of polyamine crosslinker to be used, such a parameter is clearly a result-effective variable. It is well known in the art that crosslinking adds strength and toughness to a composition. However, the addition of too much crosslinker will yield a composition that is too brittle to have any applicability. Therefore, it would have been obvious to one having ordinary skill in the art to have optimized the amount of crosslinker added to the composition taught by Bontinck to produce a coating composition having the desired strength and toughness while also possessing a desired degree of flexibility.

Furthermore, being that the composition taught by Bontinck has been shown to be anticipatory of that as claimed in the instant application, the addition of a crosslinker to said composition reads on the coating composition of claim 20 and the articles of claims 21-23 of the instant application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KYLE BAUMSTEIN whose telephone number is (571)270-5467. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KBB/

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796